



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE DISTRIBUTION OF POPULATION IN MEXICO

By the late SUMNER W. CUSHING

[With separate maps, Pl. IV, facing p. 232, and Pl. V, facing p. 242.]

The manner in which the people of Mexico are distributed is especially instructive because it exhibits such striking contrasts. A densely populated plain is often bordered by an almost uninhabited region of mountains. In the dry north a section supplied with water for irrigation may have 100 people per square kilometer, while an adjacent section, equally flat and fertile, but without water for irrigation, may have practically no permanent population. Again, a malarial coastal strip is usually unoccupied save for a few squalid families of fisher folk, while a well-drained section directly back of it is densely peopled. The causes of this peculiar distribution form the subject of this article.

The characteristics of distribution appear most clearly when the population is divided into rural and urban classes. If a town contains a population of 2,000 or more persons it is considered urban, for in Mexico such a place is almost sure to have many of the characteristics of a Latin city such as a plaza surrounded by at least a few government buildings, and a large church and an important market place, and perhaps some paved streets. Moreover, in towns of such size a large proportion of the people are engaged in trade and transport, even though the business may be on a simple scale and be founded purely on agriculture. On the other hand, a great majority of the places of less than 2,000 persons are rural in the sense that they consist largely of the houses of farmers who go out to the fields each day. It must be borne in mind, however, that the differences between cities and villages in Mexico are not nearly so striking as in the United States. In the dry parts of the country even the smallest village is like a city in having the adobe houses all close together without intervening yards and gardens. On the other hand, in the wet portions of Mexico even the cities often resemble overgrown villages. In no part, however, are there many persons living on isolated farms, as is common with us. The Mexican rural population consists almost exclusively of villagers. Where the population is sparse it means that the villages are small and far apart.

Each of the two kinds of population, rural and urban, is illustrated by a map (Pls. IV and V) based on the latest census, that of 1910.¹ The maps have been carefully compiled and aside from the imperfections of the census itself are believed to be accurate. In compiling the rural map the *partidos* or counties have been taken as the unit. The population of the towns has in

¹ A map showing total population distribution is given by José Covarrubias in a publication of the Ministry of Agriculture, "Varios estudios complementarios de las leyes agrarias, Mexico," 1914. This is described as based on the *municipio* (township); the scale is approximately 1: 13,000,000.—EDIT. NOTE.

each case been subtracted, and the number of remaining inhabitants has been taken as the basis for determining the population per square kilometer. In the city map the size of about 850 towns of over 2,000 is indicated by the size and character of the symbols. In compiling this map it was surprising to find that no more than about 600 of these towns were shown on any single map, although some were on one map and others on another.

Rural Population of Mexico

Not only is the rural population of Mexico almost entirely agricultural, but the permanent wealth and prosperity of the country must depend on

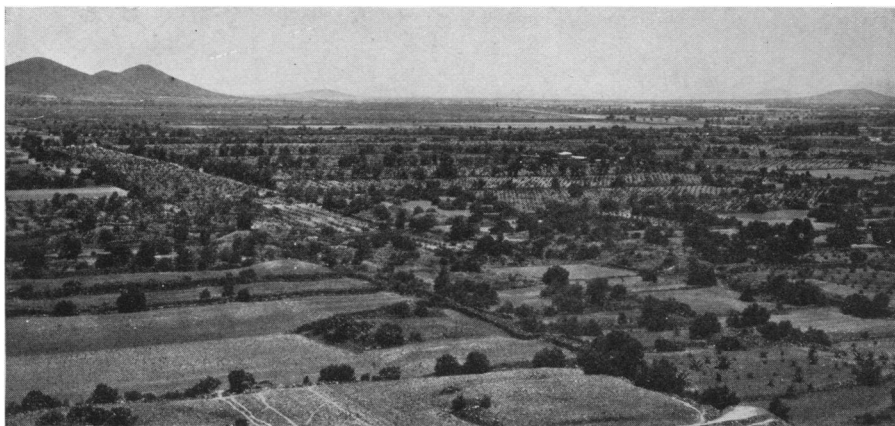


FIG. 1.—View from the Pyramid of the Sun at Teotihuacán looking east over the maguery fields to the pass of Apam. This broad pass is the great highway leading from Puebla and the coast region into the Valley of Mexico. (Copyright by C. B. Waite.)

agriculture, in spite of the importance of certain minerals. Indeed it is quite within bounds to say that if Mexico's rural problems were settled satisfactorily, many of the other difficulties would quickly adjust themselves. As a preliminary to the problem it is necessary to know something of the distribution of the rural population. This distribution depends largely on rainfall, altitude, and relief—for these conditions determine the success and intensity of farming.

RAINFALL AND POPULATION DENSITY

The most striking thing shown by the map of rural population is the contrast between the very sparsely inhabited country districts in the northern half of Mexico and the densely populated south-central part. The chief cause for this contrast is rainfall.² In the north there are fewer than five rural inhabitants per square kilometer because the rainfall is

² Compare with the rainfall map, Fig. 10, p. 255, and also the temperature map, Fig. 9, p. 254.

generally less than 20 inches (50 cm.), which is insufficient to water crops. Except where irrigation is practiced or mining is carried on, the people are supported by grazing. In the extreme north and northwest, where the rainfall is even less than 10 inches (25 cm.), the rural population is less than one person per square kilometer. Here grazing is relatively poor; some parts indeed are typical deserts. This most sparsely settled portion of Mexico has about the same density of rural population as our Rocky Mountain states, while the rest of the northern half of Mexico has about the same rural density as our Pacific states. Because of the scarcity of isolated farms and ranches, however, the distance from settlement to settlement is greater than in the corresponding parts of the United States.

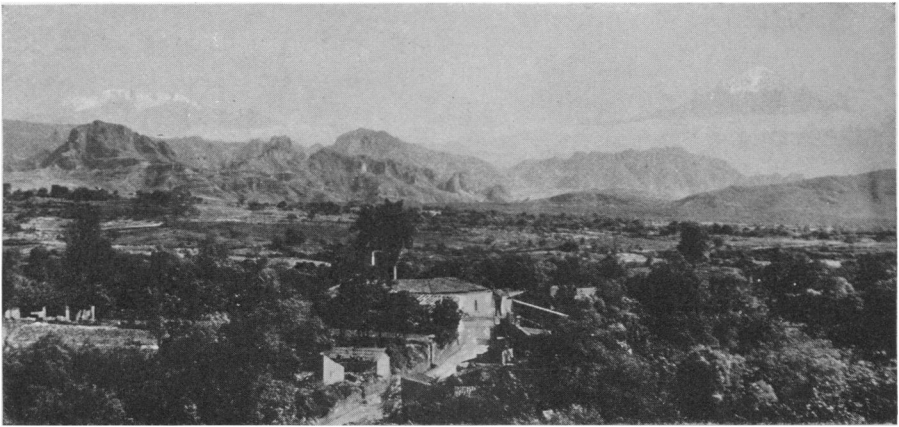


FIG. 2.—On the outskirts of Cuernavaca, capital of Morelos: in the background Popocatepetl (right) and Ixtaccihuatl (left). The sheltered valley has a delightful climate and rich soil and is famous for its production of sugar cane and fruits. (Copyright by C. B. Waite.)

The effect of rainfall is strikingly exhibited in the environs of Monterrey where a local increase of more than 10 inches is accompanied by a corresponding increase of rural population to more than 10 per square kilometer. South of this relatively favored section the rainfall diminishes a little and then increases once more. The rural population, however, does not respond as might be expected. The fact is that, although the total annual rainfall is greater than in the north, its distribution is not favorable; nearly all of the rain falls in late summer and early autumn, too late to give the crops a good start. Hence grazing is the main support of the very sparse population, and southern Nuevo León and nearly all of Tamaulipas are included in the section having less than five persons per square kilometer.

In the more densely populated south-central part the rainfall ranges from 18 to 40 inches or more, and practically all comes in summer when it is most needed. Here crop farming is successful, and the rural population rises to over 20 persons per square kilometer, about the same as that of the Middle Atlantic states of New York, New Jersey, and Pennsylvania—the

part of our country where it is densest. In certain sections where agriculture is especially favored important cities have grown up. These in turn have made it easy to market crops and to get relatively high prices, and here 50 or 60 rural inhabitants, and even more, are supported by each square kilometer, a condition similar to that existing in the environs of our own large cities. Cities which have grown up in particularly good agricultural regions and which are surrounded by particularly large rural populations include Mexico City, Toluca, Puebla, Morelia, León, and Guadalajara.

The beneficial effect of increased rainfall, however, does not continue indefinitely, for there may be too much rain. This is especially the case in regions where the rain is distributed throughout most of the year, as in southern Mexico, instead of being limited to a single season, as in the center and north. In such regions agriculture becomes extremely difficult. This is partly because the constant moisture leaches away the plant foods from the soil so rapidly that one or two crops (where a single type of plant is cultivated) exhaust the soil unless fertilizers are used abundantly and the subsoil is turned up by deep plowing—both very difficult processes for an inert tropical people with little energy and little capital. The difficulty of agriculture in tropical regions that are constantly wet is also due in part to the rank growth of native vegetation which chokes the cultivated crops. In these seemingly contradictory statements lies one of the most noteworthy characteristics of the vegetation in the moister tropical regions—its great diversity. A single species does not cover a given area and thus draw heavily on one or two special constituents of the soil, but many species grow side by side and so all are able to thrive. Thus the luxuriance of tropical vegetation can be overcome only by extraordinary energy on the part of the individual, which of course is rare in Mexico, or else by cultivating “plantation” crops such as sugar, bananas, rubber, and cacao. Such crops, however, support a dense population only when they are under the constant supervision of northern races who import food in exchange for the semi-luxuries or raw materials raised on the plantations. Hence the abundant rains and the absence of a sufficiently long dry season in southern Mexico from southern Oaxaca and southern Veracruz southward and eastward cause the rural population to be as scanty in general as in the dry north.

ALTITUDE AND RELATED FACTORS

Although rainfall is the chief factor in controlling the distribution of the rural population, its influence is greatly modified by altitude. Not only does altitude affect the amount and to some degree the seasonal distribution of rainfall, but it modifies the temperature and thus not only changes the kind of crops but alters the energy with which man attacks the difficulties of nature.

Within broad regions of favorable although variable rainfall the density of rural population varies with varying altitude. This is particularly strik-

ing in a zone across the country from Veracruz to Manzanillo. The well-watered Gulf plains are so little above sea level that their temperature is high and debilitating. Moreover, the dense weeds respond to the heavy rains, while the warm jungle breeds disease-carrying mosquitoes and other insects that make life miserable. Under these conditions the rural population remains sparse, from one to five persons per square kilometer.

As the altitude increases with distance from the coast, the temperature becomes more stimulating. The rainfall also increases; but, because of the relief, the third of the three great conditions that control the density of rural population, the rain runs off rapidly from the slopes, and there is



FIG. 3—A typical scene in the neighborhood of Mitla in the sierras of the Oaxaca plateau: here organ cacti are commonly used as hedge fences. In pre-Columbian times Mitla was a center of civilization (Zapotecan culture). Today it is a backwater far off routes of travel. (Copyright by C. B. Waite.)

no unhealthful accumulation of the water in swamps and marshes. With the increase in altitude as one approaches central Mexico the rural population rises from 5 to 10 and then from 10 to 20 persons per square kilometer when the high plateau is reached. The relatively dense population of the central plateau results almost as much from the high altitude and its stimulating temperature as from the favorable rainfall.

On the western coast as a whole the regions at a low altitude immediately bordering the sea (the coastal plain is very narrow or lacking altogether) have fewer than five rural inhabitants per square kilometer. As the altitude increases inland the density of population increases to 20 per square kilometer. Almost everywhere the higher densities of population advance toward the coast or retreat from it with the advance and retreat of the higher elevations. Thus a high plateau approaches the coast in Colima province and with it the population line of 10 per square kilometer; the same thing happens in the case of the Guerrero plateau.

Other plateaus are equally potent in supporting a comparatively dense population. The Oaxaca plateau, almost isolated from the main body of the central plateau, has a population of from 10 to 20 or more per square kilometer. The still more isolated plateau of Chiapas supports a rural density of 10 and over per square kilometer, while all the bordering lower lands are less densely inhabited.

An exception to the influence of altitude is found in the low plains of Yucatan. Although the temperature is as debilitating as in the other lowlands, much of the northern half of Yucatan contains a rural population of over five to the square kilometer, and in about one-sixth of the state the density is over 10. The explanation lies in the relative dryness of the coastal region and especially in the sharply defined dry season and the free circulation of the air under the full exposure to the trade winds. These conditions give northern Yucatan another advantage, for they favor the growth of sisal. The region is so well suited to this fiber which is so much needed for binder twine in the United States, that modern enterprise has gone in and helped to increase the unusually large rural population which existed here even before the fiber was raised for export. Beyond the relatively dry and favored area given over to sisal in the Yucatan peninsula, the constant rains and dense jungle cause the low plain to be an undeveloped wilderness in which roams a very sparse and wild Indian population.

THE INFLUENCE OF RELIEF

In Mexico, as elsewhere, the level lands tend to support the largest rural populations because of the usual association of fine fertile soil and the ease of tillage and transportation. Yet, as we have seen in both northern and southern Mexico, if rainfall is not favorable the plains must go almost unused, except perhaps for grazing. Or if the altitude is unfavorable, as in the Gulf coastal plain, the density of rural population is low. In south-central Mexico, however, all three elements, rainfall, altitude, and relief, are favorable over broad areas; and the combination produces Mexico's densest population.

Let us consider unfavorable relief. Rugged lands generally have coarse soil, plowing is troublesome, and gulying is rapid. Farming is correspondingly arduous, and the transportation difficulties in the way of marketing surplus products are apt to be even more discouraging. The best illustration comes from the Sierra Madre Occidental. From southeastern Sonora across Sinaloa and Durango to central Tepic both rainfall and altitude are favorable for a good rural population, but relief is unfavorable. The density of rural population is between one and five per square kilometer and in one section west of the city of Durango falls even below one per square kilometer. An important part of this population is engaged in mining. Another example is in southern Chiapas where the rugged cordillera supports only a meager rural population; but, though the altitude is here favorable, the rainfall may be too heavy.

Ruggedness is a contributing cause of the low density of population along the western coast, for here the land begins to rise almost directly from the shore and soon becomes a maze of valleys and ravines. It might be thought that the eastern escarpment rising to the plateau from the inner edge of the Gulf coastal plain would also be rugged enough to keep down the rural population. Such is the case in part; but here even in the wildest sections are scattered innumerable pockets, parks, and valley floors, and these under favorable conditions of rainfall are ideal for corn, fruits, and especially coffee. These favored spots counterbalance the influence of a generally rugged topography and bring up the average density of rural population to 10 or 20 per square kilometer and even higher.

Urban Population of Mexico

PAUCITY OF IMPORTANT CITIES IN MEXICO

As an almost purely agricultural country, Mexico lacks the numerous large cities that are characteristic of countries where manufacturing is important. The population is one-sixth as large as that of the United States, but the ratio of cities is much less. In 1910, of cities having over 10,000 population, Mexico had only 68 while the United States had 601, a ratio of one to nine. In the same year the United States had 50 cities exceeding 100,000 inhabitants (8 of these over 500,000) while Mexico had only two, the capital (471,000) and Guadalajara (119,000).

The important cities of Mexico are sustained chiefly by trade and not by manufacturing. Their most striking characteristic is that they are market places where the surrounding agricultural population buys and sells.

GREAT NUMBER OF SMALL CENTERS

When it comes to the small center with several hundred or a few thousand people Mexico has a larger share in proportion to the total population than the United States. This is the normal tendency in an agricultural region, as may be seen in states like Iowa, for the farmer needs a small market near at hand. The tendency to congregate in small towns has doubtless also been much increased by the general insecurity that has characterized Mexico for many centuries. When small bands of robbers are abroad, a compact community gives a feeling of protection, even though it entails hardship upon the farmers who have to travel several miles to and from their farms. The tendency for the people to congregate in small centers rather than live on isolated farms is also due in large measure to the water supply. In the north permanent supplies of water are so scarce that all the families of a considerable region must congregate at one spot. Even in the central plateau the long dry season in winter causes all the minor sources of water to dry up so that the farmer cannot depend on springs or wells on his own land. Hence the Mexican, even when he is a farmer, generally

lives in what may be called a center of population. Sometimes the center takes the form of an *hacienda* or plantation headquarters, but usually it is a village.

The accompanying map (Pl. V, p. 241) shows the Mexican cities in their natural grouping. The cities themselves fall into the following classes distinguished by symbols:

- Class 1, Mexico City, population 471,000
- Class 2, population from 50,000 to 125,000
- Class 3, population from 25,000 to 50,000
- Class 4, population from 15,000 to 25,000
- Class 5, population from 10,000 to 15,000
- Class 6, population from 5,000 to 10,000
- Class 7, population from 2,000 to 5,000

To all students of Mexico the capital looms large. It rightly takes on great importance when compared with other Mexican cities, but it falls down when studied in relation to cities in other countries. Among American cities Buffalo, San Francisco, and Los Angeles rank well above it. Moreover so many of the dwellers in the capital live in adobe huts of one or two rooms, and so few require space in office buildings as well as in homes, that the city makes less impression than its size would warrant.

Of the other large cities, Guadalajara ranks with Trenton, Puebla with Tacoma, Monterrey with St. Joseph, Mo., San Luis Potosí with Charleston, S. C., Mérida with New Castle, Pa., León with Chattanooga, Veracruz with Kalamazoo, Aguascalientes with Saginaw, Mich., Morelia with Superior, Wis., and Chihuahua with San José, Cal. This comparison includes the eleven largest Mexican cities.³ To carry the comparison farther would involve the use of American cities so small that there is little likelihood that they would be widely known.

CONCENTRATION OF CITIES IN SOUTH-CENTRAL MEXICO

The most striking feature of the city map is the concentration of cities, both large and small, in the south-central part of the country on the high Mexican plateau.⁴ An egg-shaped area whose larger end is at Guadalajara and San Luis Potosí and whose longer axis extends from those cities to Oaxaca would take in the region where cities are most numerous. This is the real Mexico, the place where the rural population is densest and hence where the cities grow largest. Although it occupies only a sixth of the country, it contains more than two-thirds of the cities and nearly two-thirds of the total population. Altitude, water supply, and soil are the chief favoring factors. The altitude lowers the temperature to a degree more

³ In the comparison figures for the United States are according to the 1920 census; for Mexico, 1910 (there being no later census and no official estimate). Mexican cities are of much slower growth than cities of the United States.

⁴ Compare Professor Jefferson's map showing the situation of Mexican cities in relation to the 5,000 foot contour line, *Bull. Amer. Geogr. Soc.*, Vol. 46, 1914, p. 437, reproduced in the *Geogr. Rev.*, Vol. 3, 1917, p. 24.

favorable for work than in the lowlands while it yet remains high enough to raise some crops profitably not only in summer, but even in December and January, provided there is water. The water supply in the form of rain or irrigation water from rivers and wells is adequate in general. The soil in the level areas is deep and of high natural fertility, quite unlike the depleted soil of the far wetter southern lowlands.

INDIVIDUAL GROUPS IN SOUTH-CENTRAL MEXICO

While a detailed study of individual cities is not appropriate in this article, it will be helpful to divide the cities of Mexico into groups according to their geographical location. South-central Mexico contains 17 such groups as follows:

Ten Central Plateau Groups. (1) Mexico City, (2) Puebla, (3) Toluca, (4) El Oro, (5) Pachuca, (6) Guanajuato, (7) Michoacán, (8) Jalisco, (9) San Luis Potosí, (10) Río Verde.

Three Eastern Coast Escarpment Groups. (11) Southern part of Tamesí-Pánuco, (12) Veracruz, (13) Papaloapám.

Three Western Coast Escarpment Groups. (14) Oaxaca, (15) Mexcala, (16) Morelos.

One Isolated Plateau Group. (17) Guerrero.

The groups are separated from one another either by mountains, such as those between the Mexico City group and the Puebla group; by rugged valleys, as between the Guerrero plateau group and the Morelos escarpment group; or by arid stretches in which water is not available for irrigation, as between the San Luis Potosí group and surrounding groups.

PLATEAU GROUPS

One of the most interesting and important differences among the larger plateau groups is the present rate of growth. This probably depends in considerable measure upon the relative fertility of the soil. The Guanajuato plateau group and the Mexico City group serve as examples. Around the former the soil is highly fertile because of good climate and favorable chemical composition. Moreover, although the region was densely populated in ancient times, it has not been intensively farmed in recent generations as has the region near Mexico City. When Cortez entered the Valley of Mexico he found the Aztecs cultivating it, and since then cultivation has been continuous without the use of artificial fertilizers. The growth of cities on the Guanajuato plateau is rapid, while on the Mexico City plateau it is almost stationary aside from the influence of the capital. Already the Guanajuato plateau has 12 cities of the fifth rank or higher, that is with over 10,000 inhabitants, while the Mexico City plateau has only 7. All of these except one are so closely huddled about the capital that they seem to be sustained more by its influence than by the resources of the surrounding country. At present, however, cities or towns of the lowest

ranks, with 2,000 to 10,000 inhabitants, are more numerous and in more compact groups in the Mexico City plateau than in the Guanajuato plateau. This is probably due to the good rainfall. In the Guanajuato plateau, on the other hand, there are certain sections where the need of irrigation prevents the growth of cities unless an artificial supply of water is available to supplement the rainfall.

In the Puebla group the influence of good farming conditions is evident from the rather even distribution of many minor cities, while the influence of general prosperity appears in the development of the city of Puebla. That city, however, like Mexico City, has grown far larger than the conditions of the immediate environs would justify and has become the third city of the country. This rank is due partly to the religious importance of Puebla in Aztec and colonial times, partly to the recent introduction of manufacturing, especially cotton, and still more to the help of direct railway communication with three important regions: (1) Mexico City on the northwest, (2) Veracruz on the east, and (3) Oaxaca on the south.

Turning now to the minor groups on the plateau, the Toluca and El Oro groups are almost continuous with the Mexico City group and have similar plateau conditions. The Michoacán and Jalisco groups are favored agriculturally like the Guanajuato group, but they suffer from insufficient transportation. Both have only the blind ends of railway systems and are hampered by the lack of through routes. In this respect they contrast strikingly with the Puebla group. The Guerrero group, however, is still less favored, being the most isolated of the plateau groups. It is cut off on all sides by valleys and has no railway connections. It is no wonder that it lacks cities above the sixth rank, none having over 10,000 inhabitants.

Not all of the plateau groups are dependent primarily upon farming. The Pachuca and San Luis Potosí groups are supported principally by mines. Both are located in almost the driest stretch of south-central Mexico where farming is impossible except by irrigation, and this is limited by a small supply of river and well water. But nature has so endowed the adjacent hills with deposits of precious metals that the small groups of cities are well sustained. Each carries on a lively trade with the mining camps and smelts a great deal of ore.

The Río Verde group, the remaining plateau group included in the populous central plateau, is closely associated with the valley whose name it bears. It makes use of its waters for irrigation and enjoys the easy means of transportation which the valley affords in this rough region.

THE ESCARPMENT GROUPS

One of the most interesting aspects of the growth of cities in Mexico is the influence of the escarpments that intervene between the low coast lands and the high plateaus and mountains of the interior. At first thought, a rugged escarpment would seem to repel city growth, but between the

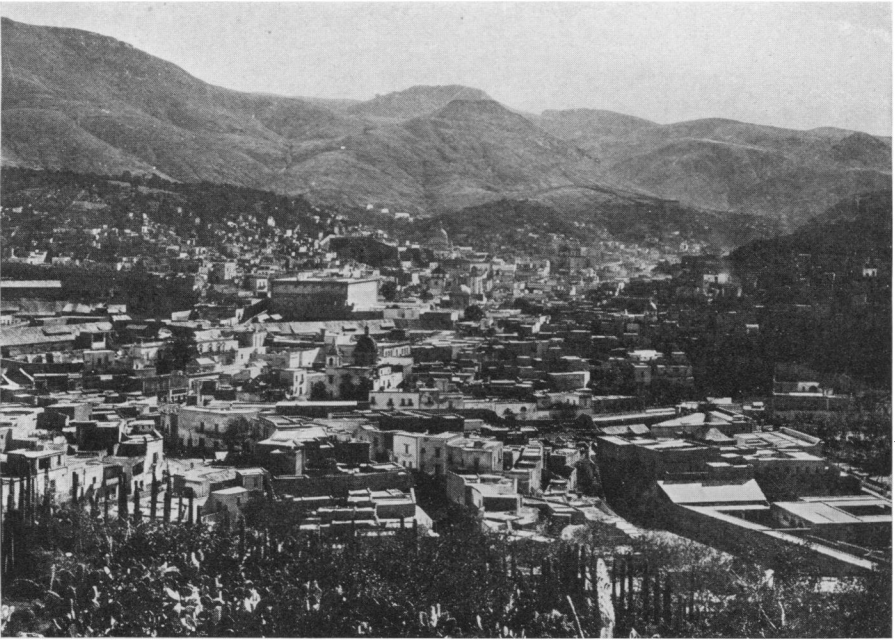


FIG. 4

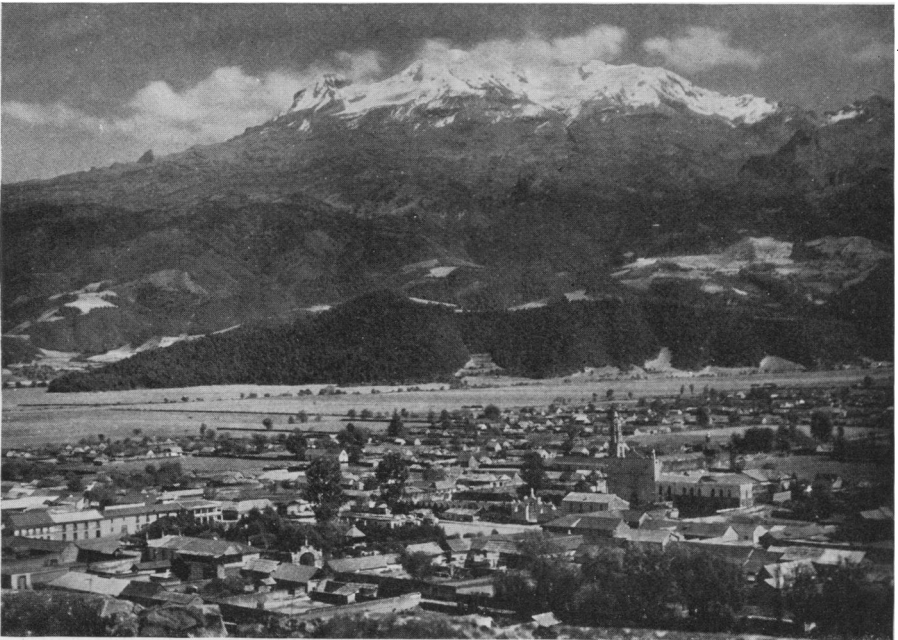


FIG. 5

FIG. 4—Guanajuato, in a narrow mountain gorge of the Guanajuato plateau. The plateau is known alike for its agricultural resources and its mineral wealth. The capital city owes its foundation and its present importance to its rich silver mines. (Copyright by C. B. Waite.)

FIG. 5—The town of Amecameca lies at the foot of Ixtaccihuatl, upon a plain well watered by the melting snows from the mountain. (Copyright by C. B. Waite.)

stern inhospitable ridges are many smiling, flat-floored valleys and coves. These open stretches have the advantages of the plateaus in their stimulating altitudes and deep soil. Moreover, their position either gives them a good rainfall, or, failing this, they are well supplied with water for irrigation since they lie along streams that rise in the plateau.

Irrigation is of no great moment in the Veracruz section of the escarpment because there the rainfall is sufficient for the needs of the farmer, but elsewhere it is of prime importance. In fact, in the drier sections, such as the northern part of the escarpment on both the eastern and western coasts, the cities have a characteristic location in that portion of the river's course where the volume is greatest, that is just before it begins to dwindle through

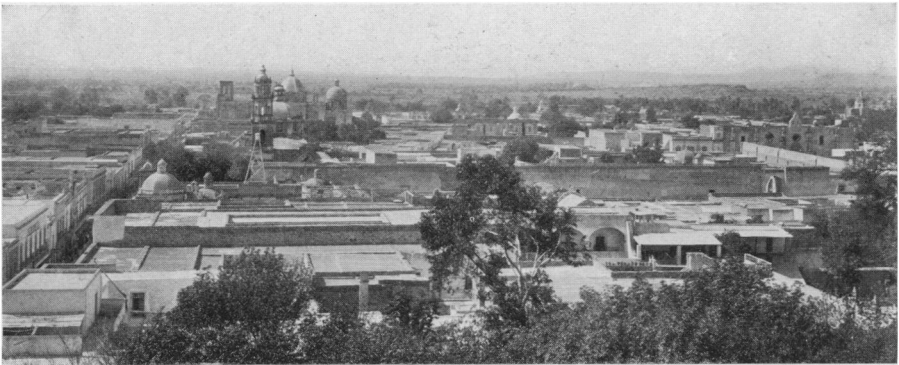


FIG. 6—Querétaro, typical agricultural city whose existence depends upon the fertile agricultural lands of the Guanajuato plateau. (Copyright by C. B. Waite.)

evaporation and absorption. So narrow are these favorable limits that in many cases only one city finds room along each stream. This accounts for the line of isolated cities along most of the western escarpment.

Not only the location but the size of the escarpment cities depends on the water supply. A close inspection of a drainage map shows that the larger escarpment cities in the dry sections are on the larger rivers. Thus Hermosillo and Culiacán, two cities of the fifth rank (10,000–15,000), which is large for that part of the country, are located upon two of the largest rivers of the western coast, while the seventh-rank towns are on small streams. Such a relation, however, does not apply to the Río Grande de Santiago farther south since it flows through a region of abundant rains.

THE IMPORTANT EAST COAST ESCARPMENT

By far the most important section of the escarpment, as the map clearly shows, is that which contains the Veracruz group of cities, including Orizaba, Jalapa, Córdoba and Teziutlan. This group has all the advantages that have been enumerated for escarpment cities in general and, in addition, an abundant rainfall and unusually good transportation, since the cities lie on

routes from Veracruz and other points on the coastal plain to Puebla and Mexico City.

The San Juan escarpment group (18) stands next to the Veracruz group in importance. Monterrey and Saltillo are its chief cities. It is given the name San Juan because the San Juan River system is the dominating factor. The special advantage of the two chief cities is that they are important railway centers on the shortest and best route from the United States to the Mexican plateau.

To the south of the San Juan group comes the escarpment city of Victoria on the Río Soto la Marina. Then comes a group of unimportant cities scattered over a large area that is associated with the Tamesi and

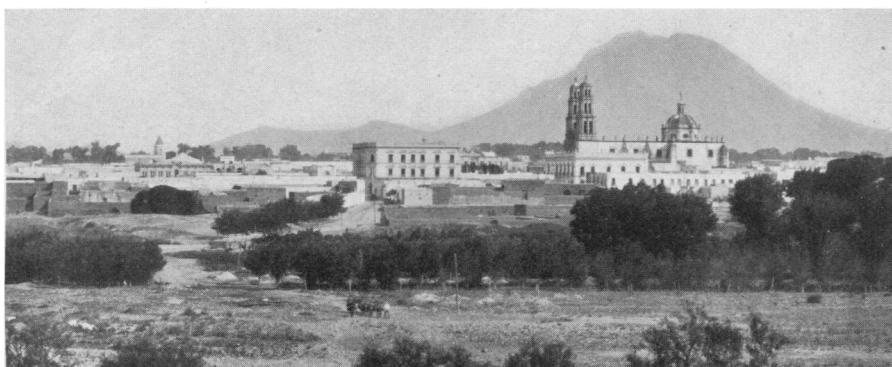


FIG. 7—Chihuahua, a thriving center of distribution for mines and cattle ranches in the arid northern plateau. (Copyright by C. B. Waite.)

Pánuco Rivers, chiefly with the latter. This group promises to grow rapidly in importance with the rise of Tampico.

South of the Veracruz group the escarpment swings around the side of the plateau and holds three groups of cities, the small Papaloapám group associated with the upper waters of the river system of that name, the scraggly group associated in the main with the headwaters of the Mexcala River, and the hollow group in the province of Morelos. Only the last holds a fifth-rank city, Cuernavaca. This seems to owe its importance to the close proximity of the densely populated plateau groups. Most of the "cities" are of the lowest rank, and even these are scattered. The unimportance of these three groups, as compared with the plateau groups, is due chiefly to inadequate transportation facilities. The few railroads that enter the groups end blindly within them, except one which goes on to Oaxaca to a like end.

West of Morelos the escarpment group thins to a scanty line of towns of the lowest rank. The reason is obvious. No railroad penetrates the section, and trade carried on along mule trails does not suffice to develop cities of importance.

When the escarpment line reaches the railway that runs from Manzanillo

to the interior it expands to include a small group of cities with Colima, a city of fourth rank, as the nucleus. It expands, too, a little to the northwest to include the group centered about Autlán (19). Here the terrain partakes of the nature of a detached plateau as much as an escarpment. Surprising as it may seem, the port of Manzanillo (1,503) is too small to appear on the map, even though it is a railway terminal. Northwest of Autlán the escarpment cities form merely a thin line for 800 miles to Hermosillo beyond which the escarpment ceases to exist.

THE CITIES GROUPS IN THE NORTHERN DESERTS

As might be expected, the desert cities of Mexico are grouped according to river systems, water being the prime factor. Water is so scarce, however, that irrigation is limited. Although ranches are widely distributed over the whole region, it usually happens that the main dependence for the food supply is placed upon a distant region like south-central Mexico or the United States. The cities are sustained by trade in these commodities with the surrounding mining camps and ranches and by transportation and industries related to minerals and cattle. This explains how such towns can grow up in regions where there is almost no population outside them, as appears on the map of rural population.

THE RIO CONCHOS GROUP

This group (20) lies along the Rio Conchos, the first large river system in Mexico south of the United States border. Numerous tributaries rise in the eastern slopes of the Sierra Madre Occidental and flowing to the north-east unite to form the trunk stream which empties into the Rio Grande near Presidio. As the main stream flows across the dry sandy desert of the eastern part of the province of Chihuahua it dwindles greatly and in dry seasons disappears altogether. Hence we find no cities along this portion of the course: they are all located on tributaries that are small but perennial.

Chihuahua, on the Chubiscar tributary, is the lion of the group. With the dammed up waters of the Chubiscar the city is well supplied for washing and drinking purposes and can carry on some irrigation. But the main support of the city is trade with the highly successful mines in the vicinity and the ranches of the rich grazing lands to the west. This trade is facilitated by two important railways, one being the main line from El Paso to central Mexico. Parral, near the southern end of the group, is the counterpart of its northern associate in relation to ranches and mines, but, being on a branch of the main railway, it is handicapped in transportation.

THE LAGUNA GROUP

The Laguna group (21) is located partly in a broad basin, known as the Laguna District, and partly along the two chief rivers that empty into the

basin, the Rio Nazas from the southwest and the Rio de Nieves (or Aguana-val) from the south. On the western edge of the basin is Torreon with two important suburbs, Gómez Palacio on the northwest for manufacturing and Lerdo on the west for the better class residences. These three form the nucleus of the whole group.

Because of a good supply of water for irrigation and because the flat floor of the basin, an old lake bottom, is ideal for water distribution, farming is more successful than in connection with any other desert group. Two products stand out notably, cotton and wheat. The Laguna District is Mexico's chief cotton section, and more wheat is raised there than is needed locally. All other food products, however, are imported. The Laguna group of cities, therefore, thrives on trade in cotton, wheat, imported foodstuffs, and the products of neighboring mines. A local plexus of railroads cares for the needs of the basin, and it is connected with outside sections by railways running south to the Mexican plateau, east to Monterrey, northwest to El Paso, and southwest to Durango.

All the other groups of the northern deserts and arid lands are based primarily on minerals; the coal group is centered around the Sabinas basin; the iron group around Salinas Hidalgo; the Monclova group has mines of its own, but more important still is the smelting carried on with coal from the north and iron ore from the east (22). Both the Matehuala (23) and Zacatecas (24) groups are founded almost literally upon silver and have other valuable mineral deposits.

THE GROUPS OF CITIES OF SOUTHEASTERN MEXICO

There remain to be treated seven groups of cities located in southeastern Mexico. Two of these, the groups of the Tuxtla and Chiapas, are merely small isolated groups that possess most of the advantages of those already described on the escarpments since they nestle in coves at considerable altitudes, the first on the flanks of the Tuxtla volcano (25) and the other in the valley of the Río Chiapas as it traverses the Chiapas plateau (26).

The other five groups are situated at low altitudes and have sufficient rains, hence they are founded upon farming and trade in tropical products destined for temperate countries. The most conspicuous of these is the Sisal group of Yucatan (27). Its center is Mérida, a city of second rank; and it is blessed with a network of railways to collect the valuable sisal fiber destined chiefly for the rope factories of the United States. If the use of sisal for binding twine were to be given up, this group of cities would suffer a severe blow but would probably still prosper, as they have long done, because northern Yucatan is apparently the best of the Mexican lowlands in climate.

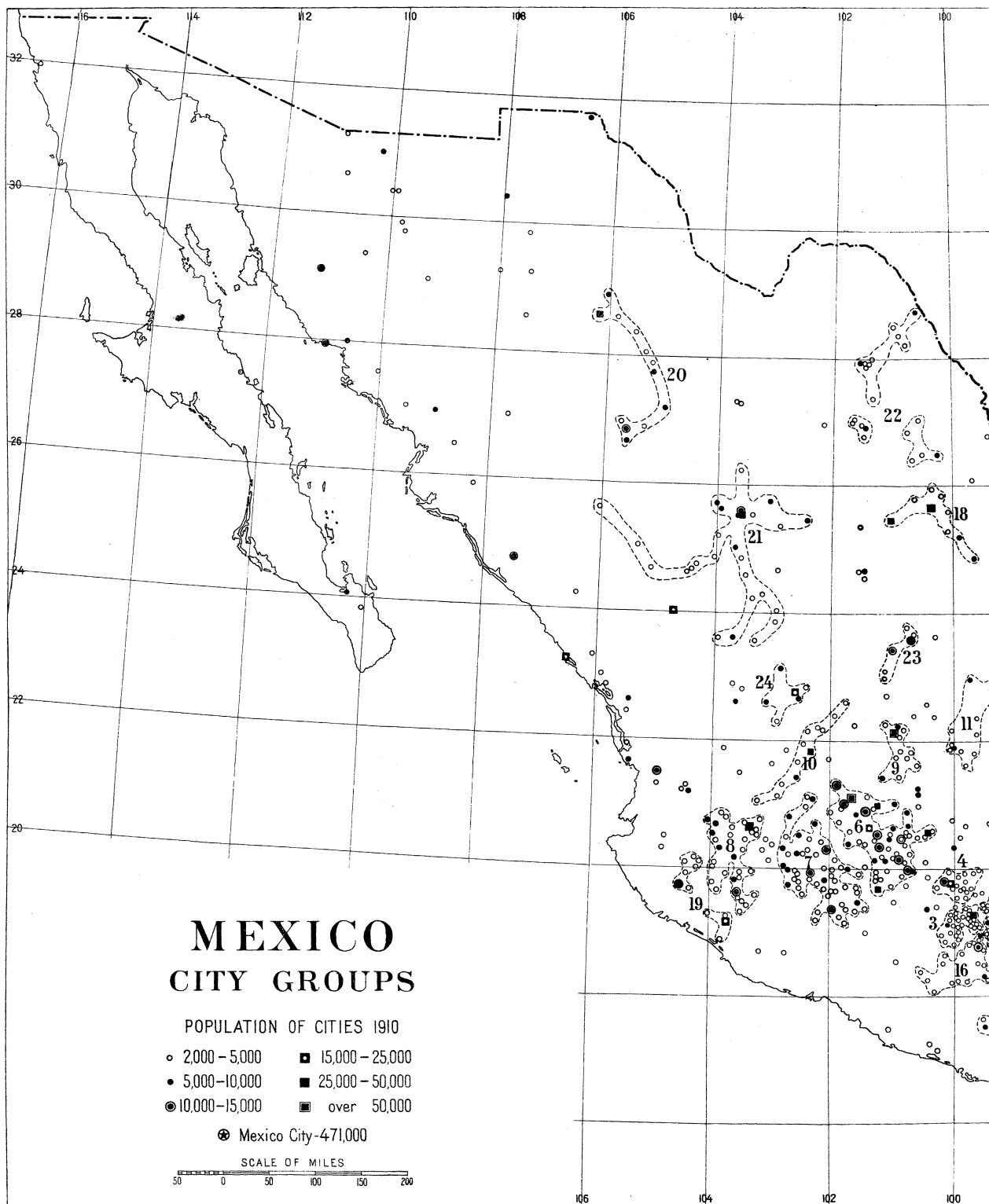
The economic backbone of the group centered around San Juan Bautista (28), now called Villa Hermosa, is the banana, although other tropical products are important, such as cacao, sugar, and cabinet woods. From its headquarters at Frontera the United Fruit Company extends its influence over

the whole group and accumulates its products over an extensive system of navigable waterways. A short railway links the Grijalva River system with the Usumacinta.

The other three lowland groups, the Puerto Mexico group (29), the Papaloapám Valley group (30), and the Tehuantepec group (31), are supported by a variety of tropical products. Chief among them are rubber, coffee, sugar, bananas, coconuts, and vanilla. The Tehuantepec group shows the influence of the Isthmian railway.

LACK OF GROUPS CENTERING AT SEAPORTS

It is noteworthy that the seaports of Mexico, excepting the minor ones of Puerto Mexico and Salina Cruz, are not members of city groups. Tampico, Tuxpan, Veracruz, Campeche, Progreso, Acapulco, Mazatlán, and Guaymas are all isolated. Each is located on the hot, wet, malarial lowlands, and the population remains in the city merely to profit by the passing of imports and exports. Other cities in the vicinity would not share in this profit, and, on the other hand, there are several conditions to discourage their growth. This is why several relatively well-known Mexican seaports like Manzanillo and San Blas fail to appear on the city map. The conditions of health are so bad that the ports fail to attract as many as 2,000 persons.



The city groups on the map are referred to by name and number in the text.

